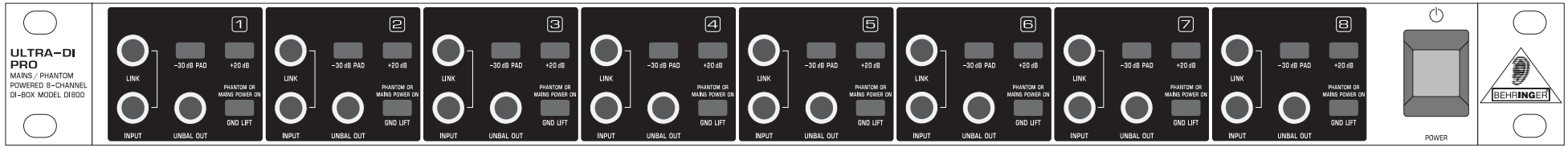
ULTRA-DI PRO DI800



www.behringer.com

User's Manual

Version 1.1 May 2003

ENGLISH

BEHRINGER®

JUST LISTEN.

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside; refer servicing to qualified personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture.

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.

DETAILED SAFETY INSTRUCTIONS:

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this device near water.

6) Clean only with a dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, extension cords, and the point at which they exit the unit.

11) Only use attachments/accessories specified by the manufacturer.

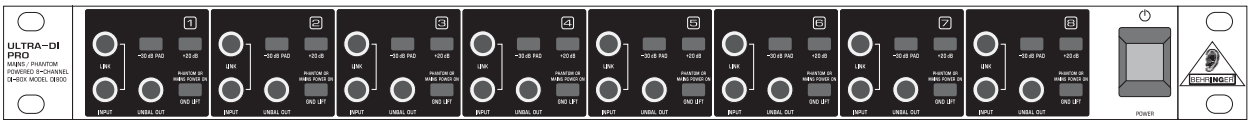
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the device. When a cart is used, use caution when moving the cart/ device combination to avoid injury from trembling over it.

13) Unplug this device during lightning storms or when not used for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the unit has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.

ULTRA-DI PRO

Professional mains/phantom powered 8-channel DI-box



- Professional, multi-purpose 8-channel Direct Injection box for stage and studio applications
- Converts unbalanced line inputs into balanced outputs
- Optional mains or phantom powered operation
- Ultra-flat frequency response due to servo-balanced operation
- Allows direct connection to speaker outputs with more than 3,000 Watts
- Ultra low-noise operational amplifiers for outstanding audio performance
- +20 dB gain switch for pre-amplification of low-level signals
- Attenuation switch for input levels up to +40 dBu
- Ground Lift switch eliminates typical ground loop problems
- Link output for easy connection to further equipment
- Gold-plated XLR and 1/4" TRS connectors
- Illuminated switches enable perfect operation in dark stage environments
- High-quality components and exceptionally rugged construction ensure long life and durability
- Manufactured under ISO9000 certified management system

FOREWORD

Dear Customer,

welcome to the team of BEHRINGER users, and thank you very much for expressing your confidence in us by purchasing the DI800.

Writing this foreword for you gives me great pleasure, because it represents the culmination of many months of hard work delivered by our engineering team to achieve a very ambitious goal: to develop an outstanding piece of equipment, whose flexibility makes it ideally suited for use in studios as well as in P.A. systems. The task of designing our new ULTRA-DI PRO certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. Meeting your expectations also meant a lot of work and night shifts. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when all who participated in such a project can be proud of what they've achieved.

It is our philosophy to share our enjoyment with you, because you are the most important member of the BEHRINGER team. With your highly competent suggestions for new products you've made a significant contribution to shaping our company and making it successful. In return, we guarantee you uncompromising quality as well as excellent technical and audio properties at an extremely reasonable price. All of this will enable you to give free rein to your creativity without being hampered by budget constraints.

We are often asked how we manage to produce such high-quality devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers mean large sales volumes enabling us to get better purchasing terms for components, etc. Isn't it only fair to pass this benefit on to you? Because we know that your success is our success too!

I would like to thank all of you who have made the ULTRA-DI PRO possible. You have all made your own personal contributions, from the developers to the many other employees at this company, and to you, the BEHRINGER user.

My friends, it's been worth the effort!

Thank you very much,

Uli Behringer

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1. INTRODUCTION

Thank you for showing confidence in BEHRINGER products by purchasing the DI800.

Be it on-stage or in the studio, musicians often look for ways to connect certain signal sources directly to the mixing console. Even though this approach has obvious advantages, there are still some technical hurdles obstructing its implementation. For example, keyboards seldom feature balanced outputs, and guitars can not be directly connected to mixing consoles because of the high impedance of guitar signals.

A DI-box lets you **directly** tap into a high-impedance, unbalanced signal—for example, the signal between a guitar and a guitar amp. From there on, you can feed the signal directly to a mixing console.

There are active and passive DI-boxes. A passive DI-box is more affordable, but its performance is highly dependent on the impedance of the equipment to which it is connected. When the impedance on the mixing console's end changes, so does the impedance at the DI-box's input. A passive DI-box only functions correctly when the impedance of the connected equipment is exactly specified (high at the input, low at the output).

On the other hand, active DI-boxes, such as the DI800, are not bound by the above mentioned limitations, since the signal located at the input is "buffered" by an amplifier. The input impedance of the DI800 is extremely high. It does not influence the sound source and has absolutely no effect on the signal flow though the DI-box. The output impedance is balanced and is very low, and the signal is far less susceptible to picking up noise. The ULTRA-DI PRO always transmits signals optimally, independent of the impedance of the connected equipment.

In addition to being powered by a mains connection, the ULTRA-DI PRO DI800 can also run on phantom power provided by your mixing console.

☞ **To avoid damaging your loudspeakers, always first connect the DI-box and only then open up the respective channel strip.**

1.1 Before you get started

1.1.1 Shipment

Your ULTRA-DI PRO was carefully packed at the assembly plant to assure secure transport. Should the condition of the cardboard box suggest that damage may have taken place, please inspect the unit immediately and look for physical indications of damage.

☞ **Damaged units should NEVER be sent directly to us. Please inform the dealer from whom you acquired the unit immediately as well as the transportation company from which you took delivery of the unit. Otherwise, all claims for replacement/repair may be rendered invalid.**

1.1.2 Initial operation

Please make sure the unit is provided with sufficient ventilation, and never place the ULTRA-DI PRO on top of an amplifier or in the vicinity of a heater to avoid the risk of overheating.

☞ **Before plugging the unit into a power socket, please make sure you have selected the correct voltage:**

The fuse compartment near the power plug socket contains three triangular markings. Two of these triangles are opposite one another. The voltage indicated adjacent to these markings is the voltage to which your unit has been set up, and can be altered by rotating the fuse compartment by 180°. **ATTENTION: This does not apply to export models that were for example manufactured only for use with 120 V!**

☞ **If you alter the unit's voltage, you must change the fuse accordingly. The correct value of the fuse needed can be found in the chapter "SPECIFICATIONS".**

☞ **Faulty fuses must be replaced with fuses of appropriate rating without exception! The correct value of the fuses needed can be found in the chapter "SPECIFICATIONS".**

Power is delivered via the cable enclosed with the unit. All requiered safety precautions have been adhered to.

☞ **Please make sure that the unit is grounded at all times. For your own protection, you should never tamper with the grounding of the cable or the unit itself.**

1.1.3 Warranty

Please take a few minutes and send us the completely filled out warranty card within 14 days of the date of purchase. You may also register online at www.behringer.com. The serial number needed for the registration is located at the top of the unit. Failure to register your product may void future warranty claims.

2. CONTROL ELEMENTS

The BEHRINGER ULTRA-DI PRO features eight identically built channels. The control elements described here refer therefore to all channels.

1 The *INPUT* connector is used for connecting unbalanced as well as balanced signal sources.

2 The *LINK* connector is the unbalanced parallel output of the ULTRA-DI PRO, used for example for connecting to an input of a monitor amplifier.

3 The input signal is also available in its unbalanced form at the *UNBAL OUT* connector.

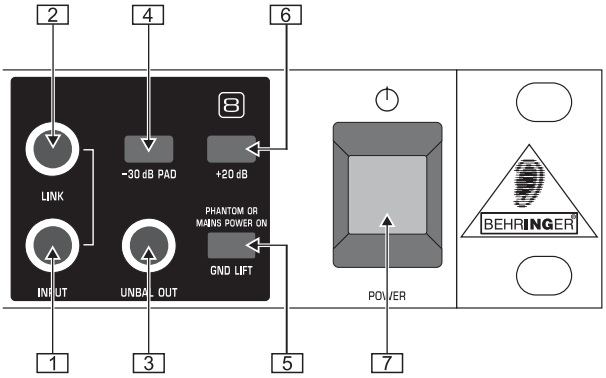

Fig. 2.1: Front panel control elements

4 The *-30 dB* attenuation switch increases the operating range of the DI800 considerably, from low signal levels of a high-impedance mic or a guitar, all the way to speaker connectors of a guitar amplifier.

☞ **Use the -30 dB switch only when the DI800 starts distorting (and not the mic preamp). When this is not the case, avoid using this function, since the lowest amount of attenuation is desirable in order to obtain the lowest signal-to-noise ratio possible.**

5 Using the *GND LIFT* switch, you can fully separate input and output grounding. Depending on how the equipment to which your DI800 is connected is grounded, using the GND LIFT switch lets you lower hum noise or ground loops. When the GND LIFT switch is depressed, the ground connection is interrupted (the LED is lit red). When the switch is in the PHANTOM OR MAINS POWER ON setting, the LED is lit green.

6 The *+20 dB* switch increases the input signal level by 20 dB.

7 Use the *POWER* switch to power up your DI800. The POWER switch should always be in the "Off" position when you are about to connect your unit to the mains.

☞ **Attention: The POWER switch does not fully disconnect the unit from the mains. Unplug the power cord completely when the unit is not used for prolonged periods of time.**

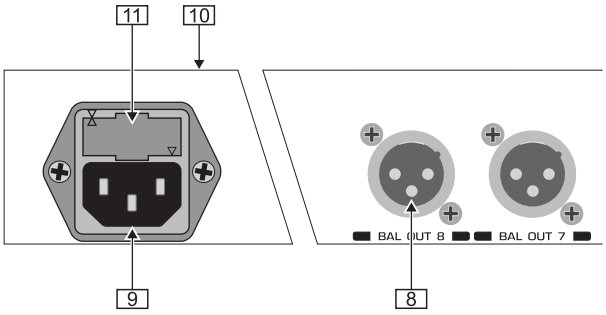

Fig. 2.2: Rear panel connectors

8 The *BAL OUT* connectors (1 - 8) are the balanced mic-level outputs of the channels 1 to 8. Use a high-quality balanced microphone cable to establish connection.

9 The mains connection is achieved via the standard IEC connector. A matching power cord is included.

10 *SERIAL NUBMER*. The serial number is located on the top of the unit. Please take a few minutes and send to us a completely filled out warranty card within 14 days of the original date of purchase. Otherwise, warranty claims may be rendered invalid. Or fill out the warranty information online at www.behringer.com.

11 *FUSE COMPARTMENT/VOLTAGE SELECTION*: Before plugging the unit into a power socket, please make sure you have selected the correct voltage. Faulty fuses must be replaced with fuses of appropriate rating without exception. Some units feature a fuse compartment that can be operated in two different positions, allowing alternating between 230 V and 120 V. Attention: when using the unit outside of Europe (running on 120 V), you have to implement a fuse with a higher rating (see chapter 5 “SPECIFICATIONS”).

3. APPLICATIONS

3.1 Connecting a guitar/bass signal

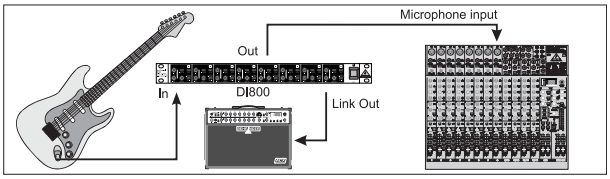

Fig. 3.1: Guitar ➟ DI-box ➟ guitar amp/mixer

This illustration shows the standard application of a DI-box. The signal feeding the amplifier remains unchanged; it is simply taken and routed into the amp. The low-impedance balanced signal is forwarded to the mic input of the mixing console. This application has its advantages particularly with bass guitars, because very few microphones can linearly transmit bass frequencies with high signal levels. If you are using effects, insert the DI800 after the effects device, so that you can monitor the effects via the PA system or the recording as well.

3.2 Converting output signals of a keyboard, DJ mixer, etc.

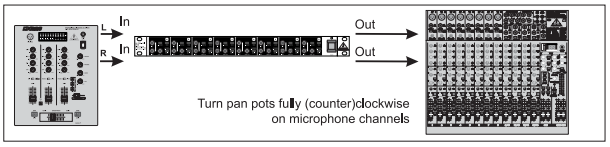

Fig. 3.2: DJ mixer ➟ DI-box ➟ mixer

This configuration lends itself to use with a keyboard, DJ mixer or other mono/stereo signal sources with line level, particularly when using long cables (e.g. connecting to a FOH mixer). The signal can be looped through to another amplifier via the LINK output. Thus, you get a monitor signal that is independent from the actual FOH signal (useful for keyboarders, DJs etc.).

3.3 Converting a microphone signal

Average-quality microphones often feature unbalanced, high-impedance outputs. The DI800 lets you wire such mics to the mixing console using long cables without running the danger of inducing hum or interference noise. To this end, the microphone has to be connected to the input of the DI-box, and the DI-box’s output needs to be connected to the mic input on the mixing console.

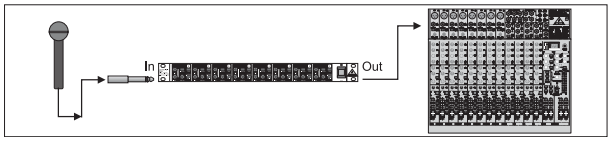

Fig. 3.3: Microphone connection

3.4 Taking a signal from a speaker output

Sometimes, you want to take a signal directly from a speaker output, even though just one speaker output is available. By using the -30 dB switch on the DI800, you can connect your mixing console to an amp output (up to 3,000 Watts into 4 Ohms), without worrying that the DI800 will be damaged due to overload! If you are using a tube amp, you should connect a speaker or a similar load resistance to the LINK output.

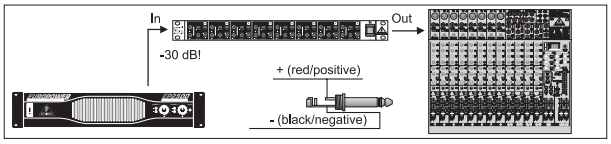

Fig. 3.4: Connection to a power amp output

☞ **Before connecting to a loudspeaker connector, please make sure that the *GROUND LIFT* switch is in the ON position (no ground connection). This prevents accidental shorting of the amp output. Besides, the tip of the input connector should be connected to the speaker connector marked with red. The metal casing of the DI800 should in no case have physical contact to other equipment.**

4. AUDIO CONNECTIONS

☞ **Please make sure that your DI800 is installed and handled only by people with enough technical expertise. Assure that those operating the unit during and after the installation are sufficiently grounded. Otherwise, electrostatic charge may alter the performance of your equipment or damage it permanently.**

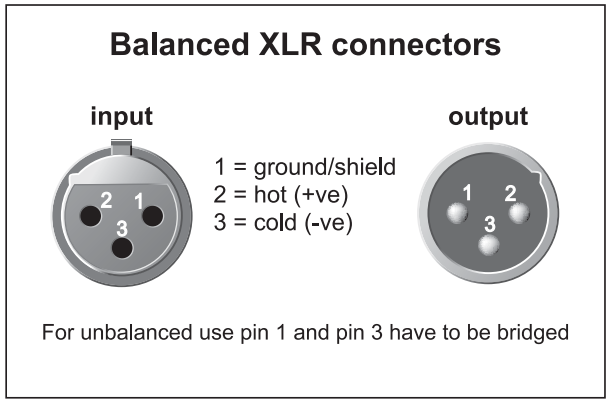

Fig. 4.1: XLR connections

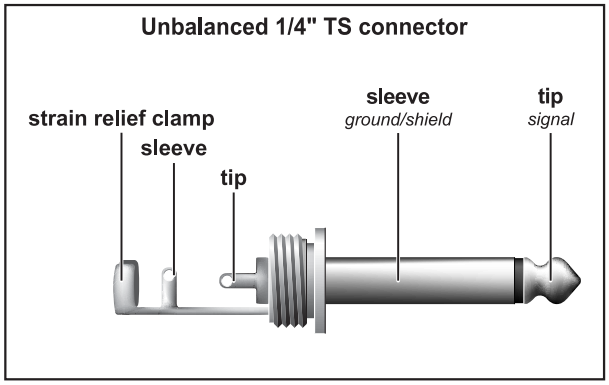

Fig. 4.2: 1/4" TS connector

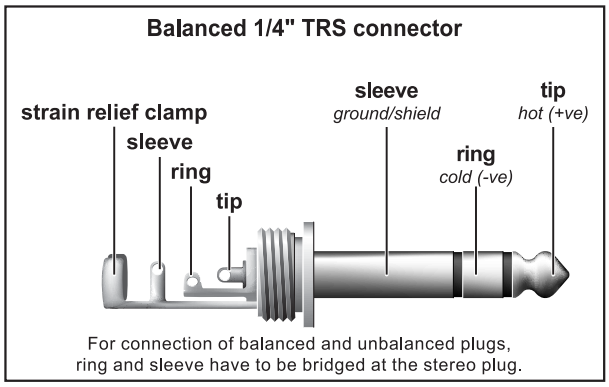

Fig. 4.3: 1/4" TRS connector

5. SPECIFICATIONS

Audio inputs	
Connections	1/4" TS connector, unbalanced
Type	DC-decoupled
Input impedance	1 MΩ
Max. input level	+18 dBu/+48 dBu (-30 dBu pad depressed)
Audio outputs	
Connections	XLR, balanced 1/4" TS connector, unbalanced
Type	electrically balanced output stage
Impedance	680 Ω, balanced
Max. output level	+23 dBu, balanced +16 dBu, unbalanced
System specifications	
Frequency range	20 Hz to 120 kHz (± 3 dB)
Signal-to-noise ratio (SNR)	-104 dBu
Power supply	
Voltage	USA/Canada 120 V~, 60 Hz Europe/U.K./Australia 230 V~, 50 Hz Japan 100 V~, 50 - 60 Hz General export model 120/230 V~, 50 - 60 Hz
Power consumption	7 W
Fuse	100 - 120 V~: **T 125 mA H** 200 - 240 V~: **T 63 mA H**
Mains connection	Standard IEC connector
Dimensions/weight	
Dimensions (H x W x D)	1 ¾" (44.5 mm) x 19" (482.6 mm) x 8 ½" (217 mm)
Weight	approx. 2.2 kg (4.85 lbs)
Shipping weight	approx. 3.5 kg (7.71 lbs)

BEHRINGER continuously strives to assure the highest quality standards possible. Required modifications may be implemented without prior notice. Technical data and the appearance of the unit may deviate from the above values and/or illustrations.

6. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims. Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 3 and 4, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.

2. If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.

3. Warranty claims other than those indicated above are expressly excluded.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) during normal business hours **BEFORE** returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.

2. Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.

3. Shipments without freight prepaid will not be accepted.

§ 4 WARRANTY REGULATIONS

1. Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

2. If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.

3. Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, potentiometers, keys/buttons and similar parts.

4. Damages/defects caused by the following conditions are not covered by this warranty:

- ▲ improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals.
- ▲ connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used.
- ▲ damages/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.

5. Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.

6. If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.

7. Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 5 WARRANTY TRANSFERABILITY

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 6 CLAIM FOR DAMAGES

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

§ 7 OTHER WARRANTY RIGHTS AND NATIONAL LAW

1. This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.

2. The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.

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